D7.6 Final Report on HiDALGO Internal Community Integration

Document Identification			
Status	Final	**Due Date**	30/11/2021
Version	1.0	**Submission Date**	04/02/2022

Related WP	WP7	**Document Reference**	D7.6
Related Deliverable(s)	D7.1, D7.2, D7.3, D7.4	**Dissemination Level (*)**	PU
Lead Participant	DIA	**Lead Author**	Ludger Benighaus
Contributors	SZE, Brunel, Plus, PSNC, HLRS/USTUTT, Atos, Know, ECMWF	**Reviewers**	Milana Vuckovic (ECMWF)
			Dennis Hoppe (USTUTT)

Keywords:
Community building, dissemination, training, collaboration, management process, case studies, internal communication

Document Information

List of Contributors	
Name	**Partner**
Rüdiger Goldschmidt, Jan Velimsky	DIA
Zoltan Horvath	SZE
Derek Groen, Alireza Jahani, Diana Suleimenova	BUL
Robert Elsässer, Christine Gferer	PLUS
Marcin Lawenda	PSNC
Sophia Honisch, Oleksandr Shcherbakov, Lorenzo Zanon, Dennis Hoppe	USTUTT
Francisco Javier Nieto De Santos, Iván Zaldívar Santamaría	ATOS
Manuela Rauch	KNOW
Milana Vuckovic	ECMWF

Document History			
Version	**Date**	**Change editors**	**Changes**
0.1	25/11/2021	Ludger Benighaus (DIA)	Internal reviewers requested changes
0.2	21/12/2021	All	Partner's contributions
0.3	15/012022	All	Partner's contributions
0.4	24/01/2022	Ludger Benighaus (DIA)	Contributions and comments from partners and reviewers incorporated
0.5	25/01/2022	Ludger Benighaus (DIA)	Contributions and comments from partners and reviewers incorporated
1.0	04/02/2022		FINAL VERSION TO BE SUBMITTED

Quality Control		
Role	**Who (Partner short name)**	**Approval Date**
Deliverable leader	Ludger Benighaus (DIA)	28/01/2022
Quality manager	Marcin Lawenda (PSNC)	02/02/2022
Project Coordinator	Francisco Javier Nieto de Santos (ATOS)	04/02/2022

Table of Contents

List of Figures

List of Acronyms

Abbreviation / acronym	Description
AI	Artificial intelligence
EU	European Union
GC	Global Challenges
HPC	High performance computing
HPDA	High performance data analysis
ICB	Internal community building
MP	Migration Pilot
SNA	Social Network Analysis
UAP	Urban Air Pollution
WP	Work Package

Executive Summary

In the HiDALGO Centre of Excellence CoE (duration Nov 2018 - Feb 2022), about 60 scientists from different disciplines worked together. A total of 13 partner institutions from seven countries were involved. One of the main challenges was to create a working environment where the different disciplines interact in an optimal and constructive way. Consequently, an internal community-building process, addressing almost all scientists, management, working groups and tasks, was designed and successfully implemented.

In this report, the project team describes and reflects on 11 different measures and actions along the four areas *management process*, *research work*, *staff development* and *transfer*. These measures were used to support collaboration within the research teams.

The authors elaborate the aspects of internal community building within the HiDALGO project in a general way, so that they can be applied and adopted to other research and technology projects.

1 Introduction

1.1 Purpose of the document

As the task for the deliverable 7.6 outlined at the HiDALGO proposal, this document:

"represents a white paper, discussing the findings with respect to bringing communities together. This presented information shall be written in a generic way, so that it can be applied to other communities as well" (EU-Proposal HiDALGO).

1.2 Relation to other project work

In principle, work on internal community building was organized closely with work in other work packages of the project, due to the nature of the task of transferring information to the consortium and to disseminate and promote results to the external community. As examples, the deliverable D7.6 builds upon and summarises these parts of HiDALGO work:

- Cooperation developed with WP2. We worked closely together in terms of task forces and the elaboration of business modelling.
- Strong ties also existed to the management team of WP1, this includes the project managers of each work package. Regular feedback was given to the process and the status of the internal collaboration.
- WP3 and WP4 connected to WP7 with activities relating to the case studies and pilots, and disseminating results via conferences, workshops and trade fair shows. Here, coupling meetings of staff from WP3 and WP4 for technical discussions took place on a regular basis.

The deliverable D7.5 "Final Report on Community Building, Event Management, Collaboration and Training" (chaired by project partner PLUS) is due later of the project's duration, in project month 39. Results from this deliverable will be incorporated into D7.5.

1.3 Structure of the document

This document is structured into four major chapters. Chapter 2 gives an overview of challenges of interdisciplinary projects like HiDALGO. Chapter 3 presents the goals that were set for internal community building and deals with the implementation of measures at HiDALGO. Consequently, Chapter 4 reflects on findings and outlines recommendations. Finally, Chapter 5 concludes this document.

1.4 Contributions

The work on deliverable D7.6 – chaired by DIA - was carried out in a cooperative and constructive way, involving main partners SZE, BUL, PLUS, PSNC, HLRS/USTUTT, ATOS, Know and ECMWF. Partners provided feedback, elaborated paragraphs for the measures and checked main findings.

2 Challenges of Large Interdisciplinary Research Projects: Example of HiDALGO

Solving today's complex challenges requires to form projects, join forces and work together in interdisciplinary teams. However, this poses new challenges for current research and development projects, because teams are formed by a multitude of research fields. Because of the large number of different areas of expertise, partners may lack a good understanding of other areas, how other disciplines work, and how to exploit synergies.

A statement by Nicolson et al. (pp. 377-378) "There are indeed many challenges and obstacles that need to be addressed before a variety of scientists can effectively collaborate across disciplines" points for actively seek good conditions and atmosphere in a research team [1].

One of the greatest challenges, but also one of the greatest opportunities for promising results, lies in the complex content work. Researchers bring in their professional background and experience in a very specialised field to develop technical solutions. If it is possible to realise and organise good content-related work here, in which researchers can develop well with all their special knowledge, and at the same time learn something and develop further, a great deal has already been gained.

In technological projects, staff turnover can be unexpectedly high, and creating replacements for specialised staff is time-consuming and expensive. Finally, also characteristic of technical sectors, the proportion of women among staff and managers has been low for a long time. Good project work means creating awareness among managers and bringing about change again and again. Human resource development, which is often a key issue for larger companies, also applies to large interdisciplinary research projects such as HiDALGO.

Good internal transfer means: scientific and technological projects often last three or more years and consist of many scientists from several countries and cultures. The teams are also rarely geographically close to each other. Due to the Covid-19 crisis, face-to-face contact was replaced by online settings. Here it is important to prepare knowledge and new developments well and to spread them throughout the team. Learning should not be underestimated. People want and need to continue their education.

Using the example of the European project HiDALGO, we discuss how internal collaboration can be effectively supported with measures in the areas of management, research work, staff development and transfer.

3 Goals and implementation of measures

Internal community building took place within the project and targeted all project partners and teams. A continuous internal process aimed at

- achieving effective collaboration between researchers,
- finding good working conditions within the consortium,
- overcoming disciplinary barriers,
- creating opportunities for mutual exchange and learning, and
- finally developing shared knowledge and experiences.

From the beginning, the project focussed first on a smaller set of measures: workshops, surveys, interviews with project managers and dedicated task forces. In the course of the project, the project team added specific actions that proved as a promising area of support for collaboration, e.g. support for female researchers, internal training and the distribution of an internal newsletter as well as the creation of a Wiki to share and exchange knowledge. Following feedback from other team members, we examined further aspects that showed an impact on community building including cases studies and publications.

Management process	Research work	Staff development	Transfer
• Dedicated sessions and workshops • Internal surveys and reflection of results • Interviews with project managers • Task forces	• Case studies and pilots • Joint publications and presentations	• Support for female researchers • Onboarding new staff	• Training, webinars and online-learning • Internal newsletters • Internal Wiki for terms

Figure 1: Measures and actions for community building

The following points summarise the experiences from the joint research activities and cooperation examining in total 11 measures (Figure 1). All measures were grouped into four areas. The *management process* consists of key elements that effectively supported the part of *research work*. *Staff development* concentrates on the people and the working

environment, while *Transfer* is on information flow and learning We describe each of these measures and reflect on the process and the results obtained.

3.1 Management process

Dedicated sessions and workshops

HiDALGO ran regularly special one-hour sessions on community building and collaboration at key events and workshops. The internal community-building served as an open and honest assessment of the project status, offered areas for improvement and gave room for developing new ideas for a fruitful and constructive collaboration.

Project networks need formal elements that define and structure the teams, goals, roles and deadlines, because the clear definition of tasks is central to any initiative. Modern team and community work, however, requires precisely interactive elements that bring cooperation and the exchange of ideas to life. Given the numerous tasks, including reporting, there is not much time for important community-building activities.

Given the limited time and the differences between the network partners in the initial phase of the collaboration, the workshops mainly aimed at achieving a synergy of two objectives:

- to get more information from and about the partners, both about individuals and their perspectives and about the characteristics of the partner organisations, including their working culture, etc,
- to promote direct exchanges between partners so that they subsequently get to know each other better. For example, a workshop in the initial phase of the project was organised like a group interview and the group met casually at a facilitation table.

All group members could summarise their answers to the questions on sticky notes on the board. The partners presented their answers to each other (not only to the moderator) so that it became clearer who they are and what they can contribute to which goal of the project. There were also questions about the expectations, perceived benefits, potentials and synergies of the HiDALGO project and network. At HiDALGO, special sessions at GA meetings have proven successful, so these should form one of the key elements of internal community building.

Internal surveys

A quantitative pre- and post-survey accompanied the project meetings (see examples of questionnaires in the appendices). The questions were related to different aspects of the project, e.g. expectations, transparency or effectiveness, also to the mutual understanding between different disciplines and project partners. Specific questions about the respective event were also included. The pre- and post-surveys made it possible to assess whether the respective meeting was able to improve certain aspects. Some of the questions were asked at

all meetings, so we were able to observe trends over time on important issues, such as whether the project goals had become clearer. However, it is important to point out the limited validity of such surveys, as they involve a small number of cases (10-20 persons) with frequently changing participants.

Nevertheless, the surveys were useful to get an overview of the state of the project, especially in terms of internal community building. The open-ended question at the end of each questionnaire brought up valuable hints e.g. of putting more effort on specific tasks and technical challenges, and improvements of timing during the meetings. As a result, the comments often provided important suggestions for improvement that had an internal impact.

Interviews with project managers

The social scientists held regular one-to-one meetings with project managers and key scientists of the project. These conversations were openly structured and presented concrete issues, for example by discussing results from the internal survey. The interviews collected feedback on product development, timing, collaboration and process. Here we collected ideas for improved cooperation between selected tasks and working groups and developed approaches for closer cross-sectoral work. For example, during these talks new working groups for technical developments and software were formed.

Task forces

During the project, several task forces were organized to address concrete topics of the research to that was carried out. The main purpose of the task forces organization was to bring together small groups of scientists to address a specific topic, so they could focus on the topic and be more efficient.

There are two reasons for that:

1) The people involved are experts in the topic and we guarantee that those experts work together, so all relevant participants will take part in the discussions.
2) Discussions will be focused on the topic, so we do not have a long list of people attending meetings in which they do not participate and do not add their expertise, being more efficient as a project.

These task forces were implemented:

- **Set of task forces Business models and exploitation**

    We had six task forces dedicated to the added value proposition, the relationship with the Global Challenges community, success stories, the project branding, the promotional campaigns and finally exploitation. Although we had separate meetings dedicated to each of the task forces, a close and intensive interaction was crucial for a successful work. The task forces led to several specific results on sustainability,

business modelling and awareness creation. Also, we identified two main success stories which are linked to the case studies: the use of the simulation and predictions in the Covid'19 pandemic and for refugee migration. The team published both at the HiDALGO webpage and on social media.

- **Task force on technical specifics**

   Another task force on exascale and parallelisation allowed to better organize many matters related to increasing the performance of applications included in the project workflow, with particular emphasis on simulation applications. The task force involved all people engaged in performance testing, application optimization and the generally taken development of domain applications.

- **Task force pilot applications**

   As an example, for a task force that was long-term, we organised so-called coupling meetings with a small and very specialised group that took care of software developments (Coupling between the data and the Pilot applications). This intensive cooperation and discussion of technical challenges facilitated innovation in HPC. These meetings were technically very demanding, so that they were held almost without interruption regularly twice a month over the entire project period.

Task forces have been useful for some concrete issues that required close collaboration between several working groups, but they also needed strong leaders to function properly. They were positive for specific tasks but can be counterproductive if used too broadly. On the negative side, they added another layer of administration, as task force chairs were needed in addition to working group leaders and the coordination team (which increased the administrative burden and the number of conference calls). On the positive side, they brought different partners together, opened necessary discussions, offered solutions and improved internal community building. We observed another important effect as task forces opened the view to a more detailed plan for the time after the research work finished, and the question of how a project should be continued.

3.2 Research work

Case studies and pilots

The researchers were intensively involved in four case studies (or pilot studies) that focused on global challenges:

- Urban Air Pollution UAP,
- Migration Case Study MP,
- COVID-19 Case Study,
- Social network analysis SNA.

Working with concrete cases and pilot applications was one of the main activities of the HiDALGO project. Here, the researchers tested models, simulations, software solutions, visualisation and HPC infrastructure. They mirrored the results with the real world by addressing global challenges. The motivation of the researchers developed quickly and remained high as they can contribute to urgent problems through research via the four case studies.

The collaboration on the four case studies required a lot of effort and coordination internally, with other researchers and stakeholders externally (e.g. NGOs, aid-centres, hospitals, city councils). However, this could be seen as the most important work on real content to solve real problems. This area very much helped the community building with interchange between experts from pilot applications and from other HPC-related domains. This could be seen as a two-way process. Here, also three project partners from the data provision joined the teams who closely linked to the pilot application. Working together on the pilot applications helped community building but also without the community building the work on the applications wouldn't be possible.

Following discussions and internal feedback, work here was perceived as very constructive and successful, in terms of outreach to the research community, chances to publish peer-reviewed publications successfully, and to work in multidisciplinary teams. People coordinated their work mainly via online meetings and conference calls.

Joint publications and presentations

As a usual process, researchers from HiDALGO worked on joint publications and gave presentations. This work combines persons from various disciplines to collect results and summarize their findings. Teams for authoring reached up to 11 persons. Examples which vary in the topic are given in [2], [3], [4] and [5].

Researchers with very different qualifications and working experiences came together for the first time and aimed at an ambitious goal to place a publication with a high-ranked journal. All have in common that interdisciplinary work was performed by gathering research results and reflect these from different angles and expertise. This also included perspectives from society, and the work on real problems in terms of the case studies and pilots. In this area, a good cooperation developed quickly, and publication teams worked intensively over a longer time.

Also comparable to the work on case studies, the joint work on improving pilot applications resulted in several research papers and presentations on confluence. Working on the papers and presenting them together enhanced the community and increased the use of common language among project partners.

As is common in research communities, HPC staff make great efforts to publish papers and make presentations at national and international conferences. Here, the project management and the staff in charge of dissemination and promotion should take a very active role and

motivate all staff to work in interdisciplinary teams and across different work packages. Dissemination managers should also be responsible for coordinating the publication process.

3.3 Staff development

Support for female researchers

The external reviewers at the mid-term evaluation pointed to the low number of women researchers in the project as a problem to be addressed in the second phase of the project. Therefore, the project leaders collected the names and contact details of women researchers and other staff involved in the project. In total, there were 18 women researchers within HiDALGO, out of approximately 60 people from 13 different project partners. The managers created a mailing list for these women researchers to invite and forward to workshops, conferences and special presentation request.

EU projects such as HiDALGO offer female researchers the opportunity to work on technology projects even with less experience. However, there could be other initiatives within EU projects (e.g. HiDALGO) to involve young female collaborators during their studies or to increase the visibility of female researchers through joint publications or conferences where they can present their work.

Collaborating with a women's association in the scientific and technical field, namely "Women in HPC", might further support the goals of both sides. In addition, talks and other achievements by women researchers could be highlighted on social media. There are also special occasions such as Women and Girls in Science Day, which could be used as a communication occasion to highlight the work of women researchers in the project.

Gender is an important component of fairness in projects, in joint decision-making and in networks. It is important to understand that gender balance is an important success factor for developing fruitful processes and solid results (Goldschmidt et al., 2015), [6]. Gender aspects can be assessed in two main ways: The first aspect includes whether female participants were equally represented in the different teams. The second aspect focuses on the (perceived) opportunities to contribute to the projects and overall objectives. The proportion of women was around 30% (18 out of 60 researchers). The lower overall rate of women in some technical topics explains that lower rates occurred in some teams. Another point is to ensure equal opportunities for men and women to contribute. In the internal workshops sometimes men started the conversations, but during the deliberations men and women equally participated in the mutual exchange of ideas and arguments. Well-trained facilitators make sure that each member of the discussion group makes an active contribution.

Onboarding of new staff

During the project period, HiDALGO experienced a higher-than-expected staff turnover. For this not to become the problem for the performance of the project, a planned onboarding and integration of a new staff member into the project community must be in place.

Many researchers left the project and others joined. This is a problem for the performance of the project and thus effects the building of the internal community, as the newcomers must get to know the other researchers first. It might be a challenge to carry out a knowledge transfer in terms of technical work.

Connecting newcomers with the other community members relevant for their work as well as common terms and content can be key to getting them involved right away, make them feel welcome and most importantly, accelerate their learning curve.

3.4 Transfer

Training, webinars, demonstrations and online-learning

HiDALGO established a broad training programme as a two-track training curriculum:

- HPC technology leaders to detail the Global Challenges needs,
- Global Challenges scientists and analysists to focus on HPC and HPDA modelling.

The two-track training curriculum addressed delegates from both academia and industry. Frequently, product and software demonstrations as well as hands-on-workshops at training events gave the opportunity to observe the ongoing process of the HiDALGO case studies and to discuss their preliminary results. In addition, HiDALGO uploaded selected training material also on a specific open online learning platform (Moodle). As an additional benefit to synchronous courses, Moodle proved an efficient repository and a valuable tool both for researchers deeply involved in HiDALGO and for external users requesting an account.

As part of the answers from the internal surveys described above, HiDALGO researchers would like to attend training dedicated sessions, showcases of preliminary solutions and software demonstrations to learn first-hand what other project partners do and how they perform their tasks. A survey among training participants also showed a broad interest in HiDALGO topics (AI, HPC parallelisation, optimisation, Global System Sciences), but also in the specific use cases explored by HiDALGO.

Although not performed by HiDALGO, one project partner suggested to set up regular hackathons. This modern format to meet and work together would give a great opportunity to collaborate closely and develop software in a team.

Internal newsletters

The internal newsletter served to disseminate news faster and tailored to the needs of the project researchers and to give new staff a better understanding of the current development of a large project like HiDALGO. An important part consists of an overview of all ongoing and planned webinars, trainings, conferences and workshops. This calendar of events has been structured along the main topics at HiDALGO HPC, HPDA, Simulation, Visualisation, Optimisation and Miscellaneous.

Internal Wiki

With a similar aim to the internal newsletters, the project has set up a wiki that contains useful information about the project's work, results, tasks and overall structure. Currently, researchers can access 263 pages, which are updated by each of the project partners. 68 people are registered. Meeting minutes and other information are also available. This enables newcomers to get used to the context of the project and responsibilities (Figure 2).
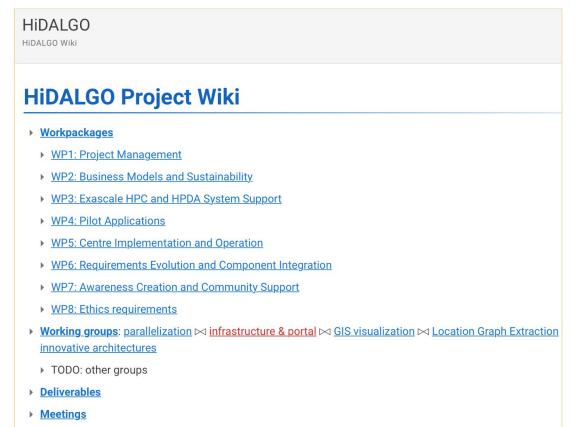

Figure 2 Internal Wiki at HiDALGO-Project. Screenshot from first page

4 Findings and recommendations

We give recommendations to 11 measures that were implemented and used at the project, structured along four categories *management process*, *research work*, *staff development* and *transfer*.

Concerning the timeline and the question about what kind of measures should be started, paused and stopped, to what extent and intensity, we do recommend a flexible approach. All measures should be ready and discussed with all team members for acceptance, and quickly implemented once these are needed and urgent issues come up.

Management process

These four measures from the management should be seen as key elements of internal community building.

Dedicated sessions and workshops

To reflect on the cooperation and to identify possibilities for improvement in an atmosphere of trust, we recommend dedicated workshops on community building at all key events of a project.

Internal surveys and reflection of results

Internal surveys conducted before and after the technical sessions and GA meetings helped the organisers to identify the strengths and weaknesses of internal cooperation and to improve working conditions. It is important to thoroughly elaborate the questions before the first survey. The quality of the questions is crucial for the design.

We can also fully recommend this action, as it also complements the measure of dedicated sessions and internal workshops. Survey suits the project best when performed regularly.

Interviews with project managers

We recommend such meetings with the project managers (the chairs of the work packages) and chairpersons of the project. However, they should be more intensive in the first phase of a project and be discontinued after some time when the need decreases.

Task forces

We recommend that task forces be used wisely, that resources be used carefully, and that the complexity of tasks be limited. To use staff resources well, the management process of "task forces" should be very targeted and only used as a substitute for other coordination activities. Concerning the timing, it can happen that specific task forces run over the whole period of the research work, while others will only last a couple of months.

Research work

These two areas form the ground of any researcher and his and her professional development, will take most of the resources.

Case studies and pilots

Case study work promises to have a real impact on today's global challenges, in general a practical outreach. We fully recommend this part and support for community building in this area. The researchers were very motivated to work in multidisciplinary teams on real problems with big data. Working on case studies was found to be very beneficial for good collaboration between different disciplines.

Joint publications, joint presentations

We recommend a pro-active publication concept and permanent management within a consortium that enables researchers from different disciplines, nationalities, and backgrounds to write on joint publications and consequently to prepare and give joint presentations at international conferences. This should be accompanied by a tailored promotional campaign once a publication is available and published.

Staff development

Concluding, we have seen that these two areas need good planning and a tailored approach.

Support for female researchers

"Programmes to support women researchers" or any other kind of gender balance should be well planned. It might be necessary to increase visibility and improve career prospects. Building a network of women researchers is a possible start, but a tailored and flexible approach is needed.

First, we suggest a workshop with the group to clarify whether support is useful, who should benefit and what kind of action would help most. Secondly, a very targeted process could be carried out to meet the needs of both junior and senior female staff.

Onboarding of new staff

Right from the beginning, managers should be aware of staff changes and take countermeasures. Regarding the measures implemented (see also below), we recommend organising regular training and briefings with new staff, publishing internal newsletters and creating internal wikis for terms, structure and content. Some colleagues from their institution should act as a mentor during the first months after new staff joins in, providing more context and introducing the newcomer to the other partners.

Transfer

We have experienced that those three measures got very good feedback and the researchers perceived them as useful, practical, and well embedded into other tasks of the project (e.g. to

external training). In addition, these measures have the potential to ease the onboarding of new staff. Concerning the use for other projects in the HPC-Domain, we recommend these as a continuous activity, which should receive significant resources.

Training, seminars, demonstrations and online-learning

This process worked very well and should be established as a standard for large projects in HPC, HPDA and Global Challenge. Although not implemented in HiDALGO, hackathons were seen as an excellent measure in a specific software area and an opportunity to disseminate new ideas and development strategies.

Internal newsletters

This is a highly recommended measure as it serves many purposes: knowledge transfer, integration of new staff and informing large teams about new developments.

Internal Wiki for terms

In summary, the information in the wiki supports knowledge transfer, but further measures are needed, especially in cases where knowledge transfer cannot take place smoothly.

5 Conclusion

In the HiDALGO project, as described at the beginning of this report, continuous internal community building was implemented. During the lifetime of HiDALGO, we saw that a community-building approach - flexible, well-planned, tailored to needs and responsive - had the potential to overcome typical challenges of large research projects and develop highly technical solutions.

The specific measures analysed above led to a good climate for successful and close collaboration between researchers with different expertise. The software and tools we developed integrated different disciplines and led to several interdisciplinary publications. Case studies and pilot applications showed very interesting results that support addressing global challenges.

Mutual understanding and internal cooperation improved from the beginning. The various measures to build an internal community supported to achieve the ambitious goals of the project.

References

[1] Nicolson, C. R., Starfield, A. M., Kofinas, G. P., Kruse, J. A. (2002), Ten heuristics for interdisciplinary modelling projects, Ecosystems, 5(4), 376-384

[2] Jan Velimsky, Christoph Schweimer, Christine Gfrerer (2020): Message spread on Social Media. Comparing the FPÖ and NEOS during the election campaign of the 2019 Austrian National Council Elections. Tag der Politikwissenschaft 2020 (Political Science Day) by the Austrian Political Science Association (AuPSA).

[3] A. Jahani, H. Arabnejad, D. Suleimanova, M. Vuckovic, I. Mahmood and D. Groen, "Towards a Coupled Migration and Weather Simulation: South Sudan Conflict," in International Conference on Computational Science, 2021.

[4] Schweimer, C., Geiger, B.C., Wang, M. et al. A route pruning algorithm for an automated geographic location graph construction. Sci Rep 11, 11547 (2021). https://doi.org/10.1038/s41598-021-90943-8

[5] Gogolenko S. et al. (2020) Towards Accurate Simulation of Global Challenges on Data Centers Infrastructures via Coupling of Models and Data Sources. In: Krzhizhanovskaya V. et al. (eds) Computational Science – ICCS 2020. ICCS 2020. Lecture Notes in Computer Science, vol 12142. Springer, Cham. https://doi.org/10.1007/978-3-030-50433-5_32

[6] Goldschmidt, R., Tomblin, D. and Rask, M. 2015. The role of gender in global citizen deliberation. In: Mikko Rask and Richard Worthington (ed.), Governing Biodiversity through Democratic Deliberation, London: Routledge, 130-151. [Peer reviewed]

Annexes

Annex I

Pre-Survey for internal community building – to be sent before a GA or an important meeting

Internal community building – Internal survey

General Assembly Meeting

Date - online – before the meeting

A How do you currently perceive the *overall state* of (our project)?

	I agree completely						I disagree completely
1) I expect that the project will be a success.	☐	☐	☐	☐	☐	☐	☐

B How do you currently perceive the *transparency* within (our project)?

	I agree completely						I disagree completely
1) It is clear to me what (our project)'s overall offerings will be.	☐	☐	☐	☐	☐	☐	☐
2) It is clear to me which services (our project) will offer.	☐	☐	☐	☐	☐	☐	☐
3) All project partners have the same understanding of (our project)'s offerings and services	☐	☐	☐	☐	☐	☐	☐
4) It is clear to me what the 'marketplace' will include.	☐	☐	☐	☐	☐	☐	☐
5) (our project)'s strategy for external community building is clear to me.	☐	☐	☐	☐	☐	☐	☐

C How do you currently perceive *the integration* within (our project)?

	I agree completely						I disagree completely
1) All project partners use all the technical terms in the same understanding.	☐	☐	☐	☐	☐	☐	☐
2) There is a gap between the different communities within (our project).	☐	☐	☐	☐	☐	☐	☐

D: Any open points?

Please put down any thoughts that came up:

_____

_____

Thank you very much for your time and input!

We very much appreciate your collaboration!

Annex II

Post-Survey for internal community building – to be sent after a GA or an important meeting

Internal community building – Internal survey

General Assembly Meeting

Date – after the meeting

Did you answer the survey BEFORE the meeting? ☐Yes ☐No

A How do you currently perceive the *overall state* of (our project)?

	I agree completely						I disagree completely
1) I expect that the project will be a success.	☐	☐	☐	☐	☐	☐	☐

2) The discussions during the meeting indicate that the project is in the following phase of Tuckman's model of team development:

    1. forming   (project partners get to know each other)
    2. storming   (they discover that they have different opinions on how to do things or on the roles and responsibilities)
    3. norming   (project partners agree on how to do things and on roles and responsibilities)
    4. performing (they do their joint work efficiently)
    5. adjourning (they prepare for the end of the group work)

☐ 1. forming
☐ 2. storming
☐ 3. norming
☐ 4. performing
☐ 5. adjourning
☐ I don't know
☐ The model does not fit

B How do you currently perceive the *transparency* within (our project)?

	I agree completely						I disagree completely
1) It is clear to me what (our project) overall offerings will be.	☐	☐	☐	☐	☐	☐	☐
2) It is clear to me which services (our project) will offer.	☐	☐	☐	☐	☐	☐	☐
3) All project partners have the same understanding of (our project) offerings and services	☐	☐	☐	☐	☐	☐	☐
4) It is clear to me what the 'marketplace' and "portal" will include.	☐	☐	☐	☐	☐	☐	☐
5) (Our project) strategy for external community building is clear to me.	☐	☐	☐	☐	☐	☐	☐

C How do you currently perceive *the integration* within (our project)?

	I agree completely						I disagree completely
1) All project partners use all the technical terms in the same understanding.	☐	☐	☐	☐	☐	☐	☐
2) There is a gap between the different communities within (our project).	☐	☐	☐	☐	☐	☐	☐
3) The different parts of the project (insert parts of the project) effectively contribute to the overall external community building.	☐	☐	☐	☐	☐	☐	☐

D How do you currently perceive the *effectiveness* of (our project)?

	I agree completely						I disagree completely
1) The vison of (our project), according to the Grant Agreement, has been implemented.	☐	☐	☐	☐	☐	☐	☐
2) The aims of (our project) have been reached.	☐	☐	☐	☐	☐	☐	☐
3) (our project)'s strategy for external community building is comprehensive.	☐	☐	☐	☐	☐	☐	☐
4) I perceive (our project)'s strategy for external community building as effective.	☐	☐	☐	☐	☐	☐	☐

E How do you perceive the *efficiency* and *effectiveness* of this *meeting*?

	I agree completely						I disagree completely
1) During this plenary meeting we effectively linked WP 2 and the technical tasks to each other.	☐	☐	☐	☐	☐	☐	☐
2) The work we put to external community building during this plenary meeting lead to a clear plan for the next months of (our project).	☐	☐	☐	☐	☐	☐	☐
3) This plenary meeting was worth its time.	☐	☐	☐	☐	☐	☐	☐

F: Any open points?

Please put down any thoughts that came up during and after the General Meeting:

_____

_____

Thank you very much for your time and input!

We very much appreciate your collaboration!